REMARKS

Applicant deeply appreciates the detailed examination conducted by the Examiner in the present application and, most particularly, the detailed Response to Arguments that was provided in the last Official Action. It is Applicant's earnest desire to further prosecution in this matter towards an immediate allowance, and the Applicant is very grateful for the Examiner's efforts to provide substantive and meaningful details regarding the outstanding rejections and their bases.

In the Official Action, Claims 1-11, 14-15, 18-29, 32, 34-38, 42, and 44-48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,158,045 (You). Claims 16-17, 30-31, 33, 39-40, 43, and 49-50 were rejected under § 103(a) as being unpatentable over You in view of U.S. Patent No. 5,533,192 (Hawley et al.). Claims 1, 20, 32, and 42 are the independent claims.

Claims 1, 20, 32, and 42 have been amended in the present Application. Claims 1-11, 14-40, and 42-50 are pending. No new matter has been added, and Applicant respectfully submits that the outstanding and rejections are respectfully traversed.

Rejection Under § 103(a)

As stated in the Specification of the present Application, "[p]rior to the present invention, the [debugger] engine in particular was written for a specific type of debugging and for a specific type of processor/machine" (Specification, page 1, lines 30-31). On the other hand, the invention of the present Application is direct to "a debugger [engine] for debugging computer code from any of several debugging types on any of several processors such that multiple debuggers for the several debugging types and processors are not necessary" (Specification, page 1, lines 16-18.

Claim 1 is representative of the invention claimed in the present application and includes limitations similar to the other independent claims (20, 32, and 42) and which therefore apply to all dependent claims as well. In this regard, Claim 1 (as amended) recites:

> 1. A debugger for debugging any of a plurality of debuggees, **each debuggee having a debugging type attribute selected from a plurality of debugging type attributes** and representative of a type of debugging to be performed with respect to the debuggee, **each debuggee also having a processor attribute selected from a plurality of processor attributes** and representative of a type of processor associated with the debuggee, the debugger being instantiated on a computer and comprising:
>
> ~~an~~ **a single debugger engine** for performing debugging functions with respect to **any of the plurality of debuggees**, the engine including:
>
> **a plurality of debugging type blocks**, each debugging type block for supporting at least one of the plurality of debugging type attributes; and
>
> **a plurality of processor blocks**, each processor block for supporting at least one of the plurality of processor attributes,
>
> wherein **a particular debugging type block and a particular processor block are selected for debugging a particular debuggee based on the debugging type attribute and processor attribute of the particular debugee.**

(underlining and strikethrough to show amendments) (bold text emphasis added). To better understand this claim, reference is made to Fig. 3 of the present Application illustrates a debugger executing on a single computer with a single process with **a plurality of debugging type blocks** (Live Kernel Block 36d, Live User-Mode Block 36d, Dump Kernel Block 36d, etc.) and a **plurality of processor blocks** (x86 Block 36p, Alpha Block 36p, IA64 Block 36p, etc.), each of which supports at least **one of the plurality of debugging type attributes and processor attributes** for several different debuggees having different debugging type attributes and/or different processor attributes as shown in Fig. 2.

In stark contrast, Applicant respectfully submits that You does **not** disclose a single debugging engine for debugging a plurality of debuggees having different debugging type attributes and/or different processor attributes. Indeed, Applicant respectfully submits that You instead discloses, at most, a debugging engine for a single debugging type block and for a single debugging processor (the processor type of the host it is running on).

In understanding this distinction, it is important to note that, in the invention of the present Application, it is each **debuggee** (not the **debugger**, that is, not the debugging engine) that has a specific debugging type attribute and a specific processor attribute. In other words, *it is the code to be debugged that specifies the type of debugging*—e.g., kernel mode from a live machine, kernel mode from a dump file, user mode from a live machine, user mode from a dump file, etc. (Specification, page 1, line 31 to page 2, line 2)—and *it is the code to be debugged that specifies the type of processor*—an x86 processor, an Alpha processor, an IA64 processor, etc. (Specification, page 2, lines 3-4). **Because code to be debugged will react differently in different types (modes) and on different processors, it is advantageous to perform multiple type and multiple processor debugging with a single debugger engine on a single computer system.** Of course, this debugger engine may very well be written to execute specifically on a specific processor (and thus is machine specific), and nothing in the present Application suggests anything to the contrary, but the debugger itself may emulate several processors and modes to provide the desired combination for effectively debugging different code, and that is exactly the idea that is at the heart of the invention of the present Application.

Therefore, Applicant respectfully requests that the Examiner reconsider his conclusions with regard to the You reference as Applicants respectfully submit that Claim 1 patentably defines over You because it employs a unique multi-task multi-processor debugger engine to debug a plurality of debuggees (code) with different task and processor debugging needs. More specfically, Claim 1 employs **debuggees having pluralities of debugging type attributes, processor attributes that utilize a single debugger engine comprising a plurality of debugging type blocks and processor blocks** in such a way that "**a particular debugging type block** and **a particular processor block** are selected for debugging a particular debuggee **based on** the **debugging type attribute and processor attribute** of the particular debuggee" (claim 1) (emphasis added). It is this unique approach to debugging that provides a solution to the long-felt need "for a single debugger engine that supports multiple debugging types and multiple processors such that **supporting, updating, and maintaining the single debugger engine is greatly simplified**" (Application, page 2, lines 12-14) (emphasis added).

To specifically address the rejection, Applicant respectfully submit that the Examiner has mistakenly concluded that "You discloses a debugger for debugging any of a plurality of debuggees…, each debuggee having a processor attribute selected from a plurality of processor attributes and representative of a type of processor associated with a debuggee (see column 72, line 55 to column 73, line 5, which shows the debuggee to have processor attributes from which the architecture of the type of the processor may be determined)…" (Official Action, page 4, section 6). On the contrary, the exact section referenced by the Examiner does not show "the debuggee to have processor attributes" but, instead, shows the determination of the actual type of host process the debugger residing on the server (and not the debuggee) is executing upon, just as the "target operating system" that is identified is the operating system for the host server upon which the debugger (not the debuggee) is executing.

Applicant also respectfully submits that the Examiner has mistakenly concluded that You teaches "an engine for performing debugging functions with respect to any of the plurality of debuggees (see column 4, lines 41-50, which shows a portable debugging system having a server debugger object or engine that is responsible for any of a plurality of debugging environments" (Office Action, page 4, section 6). On the contrary, what this section shows is that "[e]ach server debugger object is responsible for a particular debug environment" (You, col. 4, lines 44-45), and several debugger engines (and several servers) are required for a single debugger client to debug programs in more than one target environment because, by definition, a "target" is "shorthand for a target process, target host or machine, target processor, or anything related to the execution of a debugged program" and a "target execution environment is "the hardware, operating system, runtime environment, and ay other aspect of the computer on with a target process executes" (col. 7, lines 49-52 and 56-61). The "debugger client," on the other hand, "is a set of programming interfaces which define the services provided by the server" and which is the only thing that is "portable" about the invention of You—that is, that the client debugger is merely a user interface component. While You does state that "a single architecture and single framework can be executed on a wide variety of platforms" with regard to the "portability" PDS architecture itself, this only applies to the abstract architecture suggested by You and not to any single implementation thereof.

Based on the foregoing arguments and rationale, Applicant respectfully submits that You simply does not teach or suggest a single debugging engine for accomplishing the debugging of a plurality of debuggees in order to fulfill the above mentioned needs for such a single multi-task, multi-processor debugger engine as claimed in independent Claims 1, 20, 32, and 42, nor does Hawley (cited for other reasons) overcome the significant shortcomings of You in this regard. Therefore, Applicant respectfully submits that neither You nor Hawley, alone or in combination, teach or suggest each and every element of the claimed invention. In addition, Claims 2-11, 14-19, 21-31, 33-40, and 43-50 depend directly or indirectly from independent claims 1, 20, 32, and 42, respectively, and are believed to be allowable for the same reasons. Applicants thus submit that claims 1-11, 14-40, and 42-50 patentably define over You alone, in combination with Hawley et al., or with any other reference of record. Therefore, withdrawal of the rejection to claims 1-11, 14-40, and 42-50 under § 103(a) is thus earnestly solicited by the Applicants.

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CONCLUSION

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Office Action, and submit that Claims 1-11, 14-40, and 42-50 of the Application are in condition for allowance. Favorable consideration and passage to issue of the application at the Examiner's earliest convenience is earnestly solicited. However, if the Examiner concludes that the Applicant's argument and reasoning presented herein are not persuasive, Applicant respectfully requests that the Examiner schedule an immediate telephone conference with the Applicant's undersigned representative who can be reached to schedule a teleconference at 206-332-1394 or at <rknight@woodcock.com>.

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